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Synthesis and Structure of the Heterocyclic Phosphorus Containing Derivatives of [60] Fullerene

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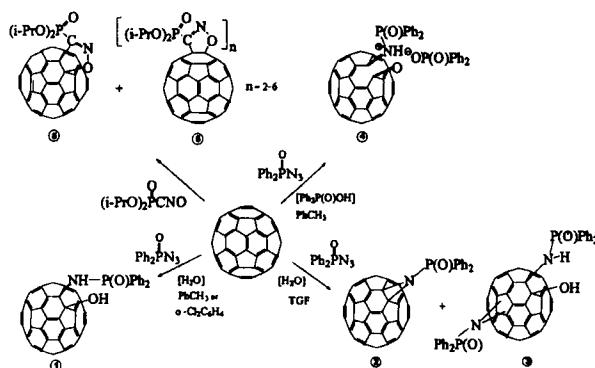
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Data on the structure of cycloadducts of organophosphorus dipolar reagents and fullerenes are absent, to our knowledge. We studied the reactions and the structure of cycloadducts of phosphorylated azides and nitrile oxide with [60]fullerene. The cycloaddition of diphenylphosphinic azide to fullerene has been determined to lead to the 1-[(N-diphenylphosphoryl)amino]-2-hydroxy[60]fullerene (1), the mixture of phosphorylated aziridinofullerene (2) and derivative of fullerene (3) with one aziridine fragment and one aminohydroxy-fragment, or to product (4), depending on the conditions of reaction.



The phosphorylated nitrile oxide in the reaction with [60]fullerene gives both phosphorylated mono izoxazoline derivative of fullerene (5), and izoxazoline polyadducts (6). These products are the first heterocyclic phosphorus containing derivatives of [60]fullerene.

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